

Demand Calculations and Summary

Turning Movement Traffic Counts with Demand

Turning Movement Traffic Counts should be conducted on each approach of the intersection showing all vehicular movements during each 15-minute interval during both the AM and PM peak periods. A mid-peak may also be applicable at certain locations. The AM, mid-peak, and PM counts shall occur on a Tuesday, Wednesday or Thursday.

Demand Counts

While collecting the peak period TMCs, the unmet demand needs to be noted in 15-minute intervals. Every 15-minutes during the peak period, the person noting demand should document the queue length right before the green phase begins for the approach and then again when the green phase ends. The queue shall be recorded no matter the length and may require additional personnel if sight distance is restricted. The information collected shall be used to calculate the unmet demand at the signalized intersection. The ITE Manual of Transportation Studies (pg. 44 – 2nd Edition) shall be used to calculate the unmet demand and the volume shall be applied to your TMC's to include the demand on the network (Figure 1). It is important that accurate numbers are obtained in the field as no approximate or range of values (i.e., 20+) will be accepted at this stage of the project. Demands may be cross checked by free flow tube data collected upstream to the approach. Additional information on queues and unmet demands can be found online from sites such as https://ops.fhwa.dot.gov/trafficanalysistools/tat_vol3/sect2.htm.

Figure 1 – Demand Calculation Table from ITE Manual of Transportation Studies (2nd Edition)

Exhibit 4-1. Example of Estimating Arrival Volumes from Departure Counts			
Time Period	Total Departure Count (Vehicles)	Queue Length (Vehicles)	Arrival Volume (Vehicles)
4:00-4:15PM	50	0	50
4:15-4:30PM	55	0	55
4:30-4:45PM	62	5	$62 + 5 = 67$
4:45-5:00PM	65	10	$65 + 10 - 5 = 70$
5:00-5:15PM	60	12	$60 + 12 - 10 = 62$
5:15-5:30PM	60	5	$60 + 5 - 12 = 53$
5:30-5:45PM	62	0	$62 - 5 = 57$
5:45-6:00PM	55	0	55
TOTAL	469		469

Source: Roess, Prasad and McShane, 2004, p. 179.